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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,853	11/19/2003	Alan D. Sloan	18243.2	1904
7590	01/26/2005		EXAMINER	
ARNALL GOLDEN GREGORY LLP 1201 West Peachtree Street Atlanta, GA 30309			CHANG, JON CARLTON	
			ART UNIT	PAPER NUMBER
			2623	
DATE MAILED: 01/26/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,853	SLOAN ET AL.	
	Examiner	Art Unit	
	Jon Chang	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-15 and 17-19 is/are rejected.
- 7) Claim(s) 16 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 November 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/17/04.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Specification

1. The disclosure is objected to because of the following informalities:
 - a) The status of the U.S. Patent Application mentioned in paragraph [0026], line 4, should be provided.
 - b) Numerous words in the specification have missing letters. The following are all of the instances the Examiner could find, but it is suggested that Applicant review the specification carefully.

In paragraph [0006], line 4, "t xt" should read, "text".

In paragraph [0009], line 7, "Und rstanding" should read, "Understanding".

In paragraph [0012], line 6, "th " should read, "the".

In paragraph [0023], line 5, "Scor " should read, "Score".

In paragraph [0026], line 1, "Imag " should read, "Image".

In paragraph [0030], line 7, "ord r" should read, "order".

In paragraph [0036], line 6, "b " should read "be", and "ev nts" should read, "events".

In paragraph [0037], line 1, " vent" should read, "event".

In paragraph [0040], line 1, " xample" should read, "example".

In paragraph [0042], line 6, "pr processor" should read, "preprocessor, and "unconstrain d" should read, "unconstrained".

In paragraph [0042], line 7, "databas " should read, "database".

In paragraph [0042], line 8, "databas " should read, "database".

In paragraph [0042], line 9, "vid o" should read; "video".

In paragraph [0046], line 2, "th " should read, "the".

In paragraph [0046], line 5, " mploy" should read, "employ".

In paragraph [0050], line 7, "det rministic" should read, "deterministic".

In paragraph [0050], line 8, "tim " should read, "time".

In paragraph [0050], line 10, " vent" should read, "event".

In paragraph [0053], line 13, "trigg r" should read, "trigger".

In paragraph [0053], line 14, "curr ntly" should read, "currently".

In paragraph [0055], line 23, "activ " should read, "active".

In paragraph [0059], line 2, "chos n" should read, "chosen".

In paragraph [0060], line 28, "p riод" should read, "period".

In paragraph [0060], line 29, "declar " should read, "declare".

In paragraph [0062], line 6, " ditor" (both occurrences) should read, "editor".

In paragraph [0063], line 3, "th " should read, "the".

In paragraph [0067], line 5, "r st" should read, "rest".

In paragraph [0067], line 7, " xclusiv " should read, "exclusive".

In paragraph [0067], line 9, "activ " should read, "active".

In paragraph [0067], line 10, "b " should read, "be".

In paragraph [0069], line 4, "oth r" should read, "other".

In paragraph [0069], line 6, "th " should read, "the", and "b " should read, "be".

In paragraph [0072], line 2, "d fined" should read, "defined", and "Chang d"
should read, "Changed".

In paragraph [0072], line 3, "user-d fined" should read, "user-defined".

In paragraph [0073], line 13, "m ant" should read, "mean".

In paragraph [0073], line 17, "sp cified" should read, "specified", and "th " should read "the".

In paragraph [0076], line 8, "R actions" should read, "Reactions".

In paragraph [0081], line 2, "Recogniz r" should read, "Recognizer".

In paragraph [0081], line 4, "som " should read, "some".

In paragraph [0085], line 3, "imag " should read "image", "thos " should read "those", and "stor d" should read, "stored".

In paragraph [0085], line 5 , "th " should read, "the".

In paragraph [0085], line 6, "tim " should read, "time".

In paragraph [0089], line 4, "d parting" should read, "departing".

c) Appropriate correction is required.

Claim Objections

2. Claims 1, 5 and 17 are objected to because of the following informalities:

In claim 1, line 1, "r ceiving" should read, "receiving".

In claim 5, line 2, "synthesiz r" should read, "synthesizer".

In claim 17, line 2, "environm ntal" should read, "environmental".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, "the video sensor" lacks antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 20010026634 to Yamaguchi.

Regarding claim 1, Yamaguchi discloses an interactive device for receiving visual inputs from an environment and providing responses based upon the inputs, comprising:

an image sensor for capturing an external image of an object (paragraph [0030], lines 1-3);

an image similarity engine for comparing the external image to a plurality of stored images, the image similarity engine providing a similarity score based on the

comparison of the external image to a stored image (paragraph [0039], lines 1-4;

paragraph [0031], line 5; paragraph [0055], lines 1-4); and

an event processing engine for creating a new event, when the similarity score is bigger than or equal to a predefined threshold, the event processing engine executing an event action associated with the new event (paragraph [0055], lines 8-10; paragraphs [0040]-[0042]).

Regarding claim 13, Yamaguchi discloses the interactive device of claim 1, wherein the device is embedded in security monitoring equipment (paragraph [0005]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-2, 4-5, 8-9, 11-12, 14-15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 6,519,506 to Osawa and Yamaguchi.

Regarding claim 1, Osawa discloses an interactive device for receiving visual inputs from an environment and providing responses based upon the inputs, comprising:

an image sensor for capturing an external image of an object (column 2, lines 31-32; column 2, lines 44-45; column 8, lines 28-30);

an image similarity engine for comparing the external image to a plurality of stored images, the image similarity engine providing a similarity score based on the comparison of the external image to a stored image (column 8, lines 33-35; column 12, lines 25-40); and

an event processing engine for creating a new event, based on the similarity score, the event processing engine executing an event action associated with the new event (column 7, lines 48-63; column 10, lines 9-67; column 11, lines 1-61).

Osawa does not disclose comparing the similarity score to a threshold score in order to determine whether the similarity score is bigger than or equal to a predefined threshold score. However, creating a similarity score and comparing it to a threshold is exceedingly well known in the field of face recognition. For example, Yamaguchi teaches this (paragraph [0055], last three lines). Providing a threshold has the inherent

advantage of allowing more precision in the recognition, as the threshold may be adjustable. Therefore, it would have been obvious to one of ordinary skill in the art to modify Osawa's invention according to the teachings of Yamaguchi.

As to claim 2 Osawa discloses the interactive device of claim 1, further comprising:

an audio sensor for capturing an audio command (column 2, lines 30-31); and
a voice recognition engine for processing the audio command, the processed audio command being sent to the event processing engine (Fig.3, elements 30, 32 and 33; column 3, line 65 to column 4, line 2).

Regarding claim 4, Osawa discloses the interactive device of claim 1, further comprising:

a mechanical input processor for receiving mechanical inputs from the user (column 2, lines 33 and 47-49);
a range finder for determining the distance between the image sensor and the object (column 2, lines 50-51).

Osawa does not explicitly mention a clock for providing timing functions to the event processing engine. However, the patent mentions "a control program stored in memory" (column 3, lines 11-12). This implies that the system is a microprocessor- or computer-based system. Such systems utilize clocks to operate (Official Notice). Therefore, the clock for providing timing functions is considered inherent in Osawa's device.

Regarding claim 5, Osawa discloses the interactive device of claim 1, further comprising:

a speech synthesizer and a speaker (column 2, lines 35-36; column 7, lines 9-13; the speech is canine speech, e.g., a bark).

As to claim 8, Osawa discloses the interactive device of claim 1, further comprising an event table (Fig.5), where the event table includes a plurality of triggering conditions (e.g., the input events, such as BALL, PAT, HIT, etc.); and at least one event action (the ACTIONS).

With regard to claim 9, Osawa does not disclose that the image sensor is a video camera. However, the Examiner takes Official Notice that video cameras are well known in the art. It would have been obvious to one of ordinary skill in the art to utilize a video camera because of they are relatively inexpensive, and because it would provide the added benefit of allowing motion image sequences to be obtained.

As to claim 11, Osawa discloses the interactive device of claim 1, wherein the image similarity engine further comprises a non-fractal based unconstrained image understanding processor (this is inferred since Osawa does not state that it fractal based, it is presumed that it is non-fractal based).

As to claim 12, Osawa discloses that the interactive device of claim 1, wherein the device is embedded in a toy (in Fig.1, the pet robot is essentially a toy).

As to claim 14, Osawa discloses the interactive device of claim 1, wherein the device is embedded in educational equipment (any robot which acts naturally like a living thing, see abstract, has inherent educational value).

Regarding claim 15, remarks analogous to those provided above for claim 1 are applicable.

As to claim 17, Osawa further discloses the method of claim 15, further comprising the steps of:

receiving environmental and selecting an event action based on the environmental information (column 14, lines 47-53).

Regarding claim 19, see the discussion provided above for claim 1.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Osawa, Yamaguchi and U.S. Patent 6,347,261 to Sakaue et al. (hereinafter "Sakaue").

Regarding claim 3, Osawa does not disclose a database managing engine for receiving data requests from the event processing engine and a database for storing event data. Osawa merely teaches various events can occur (e.g., Fig.8, SP21, and SP22). However, this is well known in the art as evidenced by Sakaue. Sakaue teaches a behavior library stored in memory, and (column 5, lines 49-50; Fig. 1, element 4h, i.e., a database), the behaviors being equivalent in meaning to the events taught by Osawa, as well as a database managing engine for receiving data requests from an event processing engine (Fig.1, element 4k; column 5, lines 45-46; column 6, lines 8-34). A database for event data, and a database managing engine would provide the inherent advantage of permitting the device to exhibit more event actions, as well as more complex combinations of event actions, thus enabling the device to act more

realistically. Therefore, it would have been obvious to one of ordinary skill in the art to modify Osawa according to Sakaue.

10. Claims 6-7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Osawa, Yamaguchi and U.S. Patent 6,442,450 to Inoue et.al. (hereinafter "Inoue").

Regarding claim 6, Osawa does not disclose the recited limitations. However, Inoue teaches an event processing engine further comprising:

an event recognizer for creating a new event object for the new event and placing the new event object into an event queue (column 27, lines 4-6 and 9-18; the new event object is an action command generated by the action determination mechanism, and the command storage part which stores the action command information is the queue);

an event queuer for managing the event queue (column 27, lines 5-26);

an event conflict resolver for resolving conflicts between event objects placed in the event queue (column 27, lines 9-16; note if an action is being carried out, a new action is executed after the action is finished, thus resolving conflicts); and

an event handler for handling events in the event queue (column 27, lines 9-18).

Inoue's event processing engine provides the advantage of allowing more complex sequences of even actions to be performed, without conflict occurring. Furthermore, the inventions of both Osawa and Inoue relate to the same device (note

Fig.1 of Inoue and Fig.1 of Osawa, as well as the common assignee). It therefore would have been obvious to modify Osawa's device according to Inoue.

Regarding claim 7, Osawa does not disclose the recited limitations. However, Inoue discloses t an event processing engine comprising:

- a category editor for creating new category for the new event (column 12, lines 51-54, note that each category created is expressed as a "group ID");
- an object editor for creating a new object for the new event (column 12, lines 54-57; the new object here is, for example, "kick a ball");
- a reaction editor for creating reactions for the new event (column 12, lin 55; the reactions would be the "patterns of actions"); and
- an event editor for defining new events (this is the action determining mechanism which determines the parameters of an action, e.g., column 12, lines 66-67).

Inoue's event processing engine provides the advantage of more efficient management of the events. Furthermore, the inventions of both Osawa and Inoue relate to the same device (note Fig.1 of Inoue and Fig.1 of Osawa, as well as the common assignee). It therefore would have been obvious to modify Osawa's device according to Inoue.

As to claim 18, Osawa does not disclose the step of placing the event action into an event queue. However, this is well known in the art as evidenced by Inoue (column 27, lines 4-6 and 9-18; the even action is an action command generated by the action determination mechanism, and the command storage part which stores the action command information is the event queue).

Inoue's event queue provides the advantage of allowing more complex sequences of even actions to be performed, without conflict occurring. Furthermore, the inventions of both Osawa and Inoue relate to the same device (note Fig.1 of Inoue and Fig.1 of Osawa, as well as the common assignee). It therefore would have been obvious to modify Osawa's device according to Inoue.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Osawa, Yamaguchi and the article, "Face Recognition Using Fractal Codes" by Ebrahimpour-Komleh et al. (hereinafter "Ebrahimpour-Komleh").

Regarding claim 10, Osawa does not disclose that the image similarity engine further comprises a fractal based unconstrained image understanding processor. However, fractal based unconstrained image understanding is well known in the art. For example, Ebrahimpour-Komleh teaches this for face recognition (see abstract and sections 2.4 and 3). Ebrahimpour-Komleh states that this technique is robust to scale change, frame size change, rotations, some noise, facial expressions and blur distortion (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art to modify Osawa's invention according to Ebrahimpour-Komleh. Ebrahimpour-Komleh clearly operates on a computer (note "database" and the use of the term "pixels" used throughout the article, which are all relevant to computer based processing of images). Therefore, the processor is considered inherent to Ebrahimpour-Komleh's disclosure.

Allowable Subject Matter

12. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

References Cited

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,345,109 to Souma et al. discloses a face recognition-matching system which compares similarity to a threshold. A sufficient similarity is determined when it is less than or equal to the threshold.

U.S. Patent Application Publication 20020126880 to Dobashi discloses a face image recognition apparatus which opens a door if the similarity between face information and registered face information is bigger than a threshold.

U.S. Patent 6,456,728 to Doi et al. discloses an object detection apparatus which captures distance information and performs pattern recognition to control the motion of a robot, toy or stuffed animal.

U.S. Patent 6,733,360 to Dooley et al. discloses a toy device responsive to visual input, which detects changes in motion, light or color.

U.S. Patent Application Publication 20040093118 to Sabe et al. discloses a robot apparatus and a system for controlling the robot apparatus.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Chang whose telephone number is (703)305-8439. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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Jon Chang
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